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**1987/08/19**

ANNEX III  
TO THE PROTOCOL ON FOSSIL ENERGY RESEARCH  
AND DEVELOPMENT ON COOPERATION IN THE  
FIELD OF ATMOSPHERIC TRACE GASES

Whereas, the Government of the United States of America and the Government of the People's Republic of China have signed an Agreement on Cooperation in Science and Technology on January 31, 1979, which was extended in Beijing on January 12, 1984; and

Whereas, the Department of Energy of the United States and the Ministry of Coal Industry of the People's Republic of China have signed the Protocol on Fossil Energy Research and Development on April 16, 1985; and

Whereas, the Department of Energy of the United States is the lead agency within the United States charged with the study of carbon dioxide (CO<sub>2</sub>) and its possible effects on climate change (so called "greenhouse effect"), and

The Chinese Academy of Sciences of the People's Republic of China has institutes engaged in the study of the prediction of climate change;

Therefore, both the United States Department of Energy and the Chinese Academy of Sciences (hereinafter referred to as the "parties") wish to enter into a cooperative research program on the possible effects of CO<sub>2</sub> on climate changes (hereinafter referred to as the "program") as Annex III to the Protocol on Fossil Energy Research and Development (hereinafter referred to as "protocol").

ARTICLE I - OBJECTIVE

The objective of the program is to have the parties enter into a joint research and information exchange activity exploring the relationship of climate changes and atmospheric levels of CO<sub>2</sub>. As a general principle, the program shall be reciprocally and mutually beneficial.

## ARTICLE II - SCOPE

In order to achieve the objectives of this program, the parties agree to the provisions contained in this Annex and shall perform the following tasks:

Task 1. To document the ability of existing general circulation models (GCMS) to describe large-scale climate, and to examine the relationship between the large-scale climate and local/regional climate changes through model simulation studies, and to assess the ability of GCMS to estimate large-scale climate changes (with reference to levels of CO<sub>2</sub>) and subsequent local/regional climate changes.

Task 2. To document and validate a regional climate data base on present-to-500 year time scale, such that local/regional climate and climate changes can be defined; and to analyze the data and to establish relationships between physical processes and local/regional climate and climate changes on selected case studies such as wet and dry periods, desertification, and increased atmospheric CO<sub>2</sub>.

Task 3. To assess the ability of models to estimate local/regional climate and climate changes by comparing the data with model simulations of large-scale climate changes that may be attributable to global climate perturbations relative to atmospheric levels of CO<sub>2</sub>.

Task 4. To gather data on atmospheric methane (CH<sub>4</sub>), an important gas associated with the greenhouse effect, by monitoring CH<sub>4</sub> levels near rice paddies, and around methane generators in the designated areas agreed upon by both parties, and by analyzing data taken from certain sampling networks of both countries.

## ARTICLE III - MEANS OF COOPERATION

1. The program shall be carried out in accordance with this Annex which details the work plan and provides for the following means of cooperation:

a. Exchange of information

- b. Visits of experts and exchange of personnel conducting various elements of the program
- c. Joint seminars and meetings
- d. Loan of equipment in accordance with Article IX of this Annex.

#### ARTICLE IV - MANAGEMENT

1. The program shall be carried out in accordance with the program management plan of this Annex, in which each party shall perform distinct but related research activities. The primary responsibilities of the program rest with the Department of Energy of the United States and the Chinese Academy of Sciences of the People's Republic of China.
2. The parties shall hold joint periodic meetings at least once a year at a mutually agreed upon date and site to review and evaluate the progress of the program.
3. All questions related to this Annex shall be settled by mutual agreement of the parties.

#### ARTICLE V - FINANCE

1. The ability of the parties to carry out their responsibilities shall be subject to the availability of appropriated funds.
2. The specific tasks, obligations and conditions with respect to the above mentioned activities, including responsibility for the payment of costs, shall be decided by mutual agreement on a case-by-case basis.

#### ARTICLE VI - LAWS AND REGULATIONS

1. The implementation of the program shall be in accordance with the laws and regulations of the respective countries of the parties.
2. Compensation for damages incurred during the implementation of the program shall be in accordance with the applicable laws of the countries of the parties.

## ARTICLE VII - INFORMATION AND INVENTIONS

1. Each party shall furnish to the other party information provided to or arising from the program as required by each party according to the needs of the program.
2. All information of each party provided to the program under this Annex, and all information arising from this Annex, except any information of a confidential nature (to be defined subsequently in exchange of letters), may be published through scientific journals and other channels commonly used for dissemination of scientific and technological information.
3. As to inventions or discoveries made or conceived under the Annex, the parties agree:
  - a. If the invention or discovery is made or conceived by personnel of one party as a result of the exchange of information between the parties such as by joint meeting, seminars, or exchange of technical reports of papers.
    - (1) The party whose personnel made the invention or discovery (the inventing party) is entitled to obtain all rights and interests in the invention or discovery in all countries, subject to a nonexclusive, irrevocable royalty-free license to the other party, its government and nationals; and
    - (2) In the event the inventing party decides not to obtain such rights and interests in the other party's country, or a third country, the other party may do so, subject to a nonexclusive, irrevocable, royalty-free license to the inventing party, its government and nationals.
  - b. If the invention or discovery is solely or jointly made or conceived by personnel of one party (the assigning party) while assigned to the other party (the receiving party) during exchange of scientific and technical personnel:

(1) The receiving party is entitled to obtain all rights and interests in the invention or discovery in its country, and third countries, and the assigning party is entitled to all rights and interests in its country and a nonexclusive, irrevocable, royalty-free license in third countries for itself, its government and nationals; and

(2) In the event the receiving party decides not to obtain such rights and interests in third countries, or a particular third country, the assigning party may do so, subject to a nonexclusive, irrevocable, royalty-free license to the receiving party, its government and nationals.

c. If the invention or discovery is made or conceived as a result of other forms of cooperation, including joint research, the party whose personnel made or conceived the invention or discovery is entitled to obtain all rights and interests in the invention or discovery in its country, and third countries, and the other party is entitled to a nonexclusive, irrevocable, royalty-free license in all countries for its government and nationals. The other party is entitled to obtain all rights and interests in the invention or discovery in its country, subject to a nonexclusive, irrevocable, royalty-free license to the party whose personnel made the invention or discovery, its government and nationals.

d. If an invention or discovery is made or conceived by personnel of both parties (co-inventors), each party shall own the rights to such invention in its own country, subject to an irrevocable, royalty-free license to the other party, its government and nationals. Third country rights shall be agreed upon by the parties on an equitable basis.

4. The party whose personnel made the invention or discovery shall communicate to the other party information disclosing the invention, any patent or other protection it elects to obtain, and furnish documentation necessary for the establishment of the other party's rights in the invention. The communicating party may ask the other party to delay publication or public disclosure of such information, provided that this restriction does not extend beyond a period of six months from the date of the communication of such information.

5. Either party, or any entity acting under agreement with either party, may obtain copyright protection in its own country and third countries on works which the party or its entity originates under the protocol, in which event the non-originating party, its government and nationals shall have a nonexclusive, irrevocable, royalty-free license under the copyrights to translate, reproduce, publish and distribute such works.

6. Each party shall assume the responsibility to pay awards or compensation required to be paid to nationals of its own country according to the laws of its own country.

#### ARTICLE VIII - DISCLAIMER

The application or use of any information exchanged under the program shall be the responsibility of the receiving party and the sending party does not warrant the suitability of such information for any particular use or application.

#### Article IX - EQUIPMENT

The Department of Energy shall loan to the Chinese Academy of Sciences four microcomputer-based systems to digitize format and analyze agreed upon instrumental and proxy climate data. Additional computational and research instrumentation may be loaned as mutually agreed to in writing.

#### Article X - DURATION

1. This Annex shall enter into force upon signature by both parties, and continue for five years, and may be amended or extended by written agreement of the parties.

2. This Annex may be terminated at the discretion of either party upon six months advance written notification by the party seeking termination. Such termination shall not affect the validity or duration of the specific activities initiated but uncompleted under this Annex.

In witness thereof, the parties have executed this Annex, in duplicate in both English and Chinese languages, both texts being equally authentic, at Beijing  
this 19th day of August 1987.

For the United States  
Department of Energy

For the Chinese  
Academy of Sciences

*Eric C. Fennell*

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